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ABSTRACT

Although this guide was designed to support "Pennsylvania Online: A Curriculum Guide for School Library Media Centers" (1985), the State of Pennsylvania curriculum guide for online searching, many of its components are also suitable for use by school librarians when teaching the elements involved in searching for resources manually. Designed to assist students in formulating focused research questions, the guide provides lesson plans and worksheets for each of seven steps in the process of defining a research problem: (1) "Developing the Research Question" encourages students to do preliminary reading to identify current issues within a subject field; (2) "Identifying Key Words" helps students develop the skill of identifying key nouns for a database search; (3) "Expanding Key Words" addresses synonyms, variant forms, and related terms; (4) "Recognizing General and Specific Topics" helps students to narrow a topic; (5) "Choosing Appropriate Terms" enables students to recognize and eliminate terms that are not related or compatible with the research question; (6) "Recognizing the Relationship Between Key Words" instructs students in the most effective ways to select operators; and (7) "Developing a Search Strategy" focuses on the selection of an appropriate subject category, selection of an appropriate database and analysis of its content, and deciding whether the search should be performed online or manually. Answer keys for the worksheets and a glossary of basic search terms are included. (SD)

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A Guide To Research Strategies

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An Agenda for Knowledge and Information Through Libraries

State Library of Pennsylvania

PROBLEM DEFINITION PROCESS:

A Guide To Research Strategies

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INTRODUCTION

Today's students are living in a technologically oriented world; a world in which information is doubling every two years. As a result, it becomes increasingly apparent that students need the skills necessary to identify and locate research materials from the vast volume of data that the information explosion has generated. While school libraries provide students access to thousands of resources and, in many cases, electronic databases, this remains useless if students have not properly analyzed the research question. Students gain valuable time when they research materials which are appropriate to their research questions. Therefore, students must acquire the competencies inherent in the problem definition process.

This document has been designed to support PENNSYLVANIA ONLINE: A Curriculum Guide for School Library Media Centers, State Library of Pennsylvania, 1985. However, many components are suitable for use by school librarians when teaching the elements involved in searching for resources manually.

Problem definition is the process of analyzing a research question, recognizing key concepts and relationships of words, and developing an appropriate search strategy.

The problem definition process can be divided into seven steps:

1. Develop the research question

2. Identify key words

3. Expand key words

4. Recognize general and specific topics

5. Choose appropriate terms

6. Recognize the relationship between key words

7. Develop a search strategy

The problem definition process is applicable for students with specific research needs as well as those whose research need is part of a larger project such as a research paper or thesis.

In addition to Pennsylvania Online, other documents in this series which will be of assistance in school library media curriculum development are:

Integrating Information-Management Skills: A Process for Incorporating Library Media Skills Into Content Areas. State Library of Pennsylvania, 1987.

Pennsylvania Guidelines for School Library Media Programs. State Library of Pennsylvania, 1987.

Step 1. Develop the Research Question

The first step in the research process is to identify the purpose or focus of the research problem. Students should be encouraged to do some preliminary reading of materials related to the topic to identify current issues within a subject field. This activity will help students develop a coherent research question which clarifies the intent of the research.

School librarians can assist students in identifying a research focus by introducing the concept of topic narrowing through the use of headings and subheadings. The lesson plans and worksheets which follow are designed to assist students in formulating focused research questions.

Lesson Plan - Step 1.1

INFORMATION-MANAGEMENT OBJECTIVES

1. Identify the purpose or focus of the research.
2. Compose a one-sentence question/statement reflecting the complete focus of the research problem.

STUDENT ACTIVITIES

1. Differentiate between focused and unfocused research questions. (Worksheet 1.1.)
2. Compose a research question and form a topic and subtopic listing from a given section of the Readers' Guide to Periodical Literature.
3. Using titles of periodical articles, formulate statements which identify the general and narrow aspects of the topic of the article. (Handout 1.3.)

TEACHER/LIBRARIAN ACTIVITIES

1. Introduce concept of topic limiting/narrowing.
2. Provide examples of general versus narrow topic areas.
3. Demonstrate the use of heading-subheadings from Readers' Guide. (prepare transparency, see Instruction Sheet 1.2)
4. Demonstrate the importance of number of citations. (prepare transparency/ handouts)

5. Demonstrate the general and specific organization concept of table of contents and of indexes - show books/handout of complicated index.

EVALUATION PROCEDURES

1. Assess and discuss student worksheets.
2. Evaluate individual student research questions.

Worksheet 1.1

Research Questions - Unfocused/focused

Place an "F" adjacent to research questions which focus on specific aspects of a topic or question. Place an "N" adjacent to research questions which are too general or not focused on a topic's central issue.

1. ___ Are whales and seals becoming extinct?

2. ___ What actions are being implemented for protection of whales and seals?

3. ___ What are the effects of acid rain?

4. ___ Is acid rain responsible for evergreen defoliation?

5. ___ Is acid rain responsible for decreased fish population?

6. ___ What are the causes of teenage suicide?

7. ___ What societal and personal pressures lead teenagers to suicide?

8. ___ How are day care centers financed?

9. ___ Is financing of day care centers by government, industry, or parents possible?

10. ___ What are the effects of nuclear war?

11. ___ How does nuclear winter threaten existence of life?

12. ___ What are the causes and effects of air pollution?

13. ___ Is the decay of the ozone layer causing a "greenhouse" effect?

14. ___ How do people deal with stress?

15. ___ What effects do stress have on overeating and acne?

16. ___ Can stress levels be lowered through physical activity?

17. ___ What are the causes of teenage alcoholism?

18. ___ Is teenage alcoholism affected by alcoholic parents?

Answer Sheet for Worksheet 1.1

Research Questions - Unfocused/focused

1. N
2. F
3. N
4. F
5. F
6. N
7. F
8. N
9. F
10. N
11. F
12 N
13. F
14. N
15. F
16. F
17. N
18. F

*Answers on some worksheets may vary

Instruction Sheet for 1.2

Relationship of Topic and Subtopics

1. Prepare facsimile of several Readers' Guide pages which have several subtopics. (transparency or individual handout)

2. Show students page layout, guideline words, subheadings and explain the purpose of subtopics.

3. Show students how to compose sample research questions from titles of periodical articles. Each student could use an old paperback index or distribute various periodicals to the students.

Handout 1.3

TOPICS:

IDENTIFYING GENERAL AND NARROW ASPECTS OF A RESEARCH TOPIC

NARROWED (Leads to focus for research)	TOPIC	GENERAL (Leads to identification and database and/or reference works and books)
Laterality Dyslexia Brain Disorders Learning	BRAIN	Mental Health Psychology Medical (medicine) Memory
Physical Response Mental Pressures Causes Relief	STRESS	Social Sciences Psychology Medical (medicine) Behavior (ism)
Mainstreaming Physical Access Civil Rights	HANDICAPPED CHILDREN	Education Law-Legal (legislation) Social Sciences
Effects (social costs) Solutions	ILLITERACY	Education Reading Literacy Social Sciences Criminology
Social, legal and/or biological issues	SURROGATE MOTHERHOOD	Bioethics Medical Ethics Law-Legal (legislation) Biology

Step 2: Identify Key Words

Every librarian has worked through the frustrating and exciting process of prying the reference question from a student or library user. We have all used worksheets or given tests where the student did not have the ability to understand the main idea.

What is the key word? Most often it is a noun or a compound noun which holds the major meaning in a sentence. For database searching, identification of the relationship of key words can be effected through the search strategy, so it is necessary for students to identify key nouns. How does one teach the concept of identifying key words? The following simple activity should help your students develop this skill.

Lesson Plan Step 2.1

INFORMATION-MANAGEMENT OBJECTIVES

1. Recognize major concept words in research questions.

STUDENT ACTIVITIES

1. Using five research questions from Worksheet 1.1, analyze each research question according to the following directions. (Refer to Worksheet 2.1)

   - Underline nouns
   - Cross out dead/meaningless words
   - Identify nouns which need to be/could be linked together
   - Propose most meaningful words as key words
   - Justify choice of key words

TEACHER/LIBRARIAN ACTIVITIES

1. Demonstrate relationship between key words within sentences.

EVALUATION PROCEDURES

1. Assess and discuss student worksheets.

Worksheet 2.1

Identifying Key Words

Select five statements from Worksheet 1.1 from Step 1 which have been labeled F. (Focused)

In each of the five statements

1. Underline all key words
2. Write the key words and briefly explain your choices

Example:

How does discrimination on the basis of physical appearance affect an individual's opportunity for employment?

Key words:

Discrimination
Appearance
Opportunity
Employment (EMPLOYMENT-OPPORTUNITY)

Answer Sheet for Worksheet 2.1

Identifying Key Words

2. What actions are being implemented for protection of whales and seals?

4. Is acid rain responsible for evergreen defoliation?

5. Is acid rain responsible for decreased fish population?

7. What societal and personal pressures lead teenagers to suicide?

9. Is financing of day care centers by government, industry, or parents possible?

11. How does nuclear winter threaten existence of life.

13. Is the decay of the ozone layer causing a "greenhouse" effect?

15. What effects do stress have on overeating and acne?

16. Can stress levels be lowered through physical activity?

18. Is teenage alcoholism affected by alcoholic parents?

Step 3: Expand Key Words

The use of the key words alone, as identified in the research question, may not always give the searcher the greatest possible number of relevant information sources. Prior to categorizing and developing relationships between these topics, key words must be examined to determine any synonyms, variant forms, and related terms. The use of these will broaden the possibility of retrieving as many documents as possible.

Lesson Plan Step 3.1

INFORMATION-MANAGEMENT OBJECTIVES

1. Identify synonyms of key words using resources such as general dictionaries, the Thesaurus of ERIC Descriptors or another thesaurus, Sear's List of Subject Headings, or Library of Congress Subject Headings.

STUDENT ACTIVITIES

1. Given a list of key words, the student will develop a list of synonyms utilizing several sources. (Worksheet 3.1)

TEACHER/LIBRARIAN ACTIVITIES

1. Define "synonym" and explain its importance in the search process. Prepare and distribute a handout with examples, i.e., ocean-sea, overweight-obesity.

2. Distribute Worksheet 3.1. Ninth grade students could be required to match the two columns. Older students could be required to find their own synonyms for the words in column A only.

EVALUATION PROCEDURES

1. Evaluate worksheets.
2. Evaluate quiz.

Worksheet 3.1

Synonyms

Match the synonym in column B to column A

A		B
____	1. holiday	A. education
____	2. weather	B. sea
____	3. dog	C. narcotics
____	4. animal	D. canine
____	5. doctor	E. sports
____	6. drugs	F. horticulture
____	7. ocean	G. universities
____	8. hurricane	H. climate
____	9. diet	I. work
____	10. flag	J. pupil
____	11. Blacks	K. professor
____	12. employment	L. mathematics
____	13. student	M. nutrition
____	14. ship	N. physician
____	15. baby	O. ethics
____	16. shrubbery	P. yearling
____	17. gardening	Q. history
____	18. arithmetic	R. infant
____	19. social studies	S. boat
____	20 physical education	T. bushes
____	21. Russia	U. Soviet Union
____	22. athletics	V. banner
____	23. teacher	W. Afro Americans
____	24. colleges	X. tropical storm
____	25. morals	Y. gym
____	26. learning	Z. feast

Answer Sheet for Worksheet 3.1

Synonyms

1. Z
2. H
3. D
4. P
5. N
6. C
7. B
8. X
9. M
10. V
11. W
12. I
13. J
14. S
15. R
16. T
17. F
18. L
19. Q
20. Y
21. U
22. E
23. K
24. G
25. O
26. A

Worksheet 3.2

Variant Spellings

Using a dictionary, identify variant spellings of the words in column A

	A	B
1.	Color	_____
2.	Encyclopedia	_____
3.	Fish	_____
4.	Glamor	_____
5.	Ghettos	_____
6.	Moneys	_____
7.	Molt	_____
8.	Cajun	_____
9.	Cabala	_____
10.	By	_____
11.	Bunco	_____
12.	Bulrush	_____

Answer Sheet for Worksheet 3.2

Variant Spellings

1. Colour
2. Encyclopaedia
3. Fishes
4. Glamour
5. Ghettoes
6. Monies
7. Moult
8. Cajan
9. Cabbala, Cabbalah
10. Bye
11. Bunko
12. Bullrush

Worksheet 3.3

Proper Names

Use the ACCESS PA database, biographical dictionaries, Current Biography or Books in Print to find as many variations as possible of the following names: (pen names, initials, nicknames)

1. Mark Twain _____
2. J. F. Kennedy _____
3. Franklin Roosevelt _____
4. Feodor Dostoevski _____
5. Marilyn Monroe _____
6. Bobby Orr _____
7. Martin Luther King _____
8. J. D. Salinger _____
9. Pope John Paul, II _____
10. Princess Diana _____
11. Steven Spielberg _____
12. Ivan the Terrible _____
13. Walt Disney _____
14. George Eliot _____
15. Agatha Christie _____

Answer Sheet for Worksheet 3.3

Proper Names

1. Samuel Clemens
2. John Fitzgerald Kennedy; J.F.K.
3. F.D.R.
4. Feodor Dostoevsky
5. Norma Jean Baker
6. Robert Gordon Orr
7. Rev. Michael King
8. Jerome David Salinger
9. Karol Woytyla
10. Princess Di; Diana Spencer
11. Stephen Spielberg
12. Ivan IV, Czar of Russia
13. Walter Elias Disney
14. Mary Anne Evans
15. Dame Agatha Christie

Worksheet 3.4

Proper Names - Places

Using an atlas, almanac, encyclopedia, gazeteer, or geographical dictionary, identify alternate names for these places.

1. U.S. _____
2. U.S.S.R _____
3. South Africa _____
4. England _____
5. TX _____
6. Near East _____
7. Latin America _____
8. Democratic Republic of Germany _____
9. China _____
10. Taiwan _____
11. Serbia _____
12. South Pole _____
13. French Indo-China _____
14. Zaire _____
15. West Indies _____

Answer Sheet for Worksheet 3.4

Proper Names - Places

1. United States
2. Union of Soviet Socialist Republics, Soviet Union or Russia
3. Union of South Africa
4. Great Britain
5. Texas
6. Middle East
7. South America, Central America, Mexico
8. East Germany
9. Peoples' Republic of China, Red China
10. China, Formosa
11. Yugoslavia
12. Antarctica
13. Vietnam, Laos, Cambodia, Kampuchee
14. Congo, Belgian Congo
15. Caribbean

Worksheet 3.5

Related terms

Match column A with all related terms in column B.

Column A		Column B
1. business	_____	A. taxes
2. animals	_____	B. reading
3. computers	_____	C. pets
4. smoking	_____	D. cigaretts
5. pregnancy	_____	E. Holy Days
6. books	_____	F. cough
7. health	_____	G. children
8. environment	_____	H. produce
9. carpentry	_____	I. siblings
10. agriculture	_____	J. prenatal
11. religion	_____	K. canine
12. family	_____	L. acid rain
		M. wood working
		N. prayers
		O. acid rain
		P. software
		Q. customers
		R. farm
		S. text
		T. zoology
		U. word processing
		V. diet
		W. library
		X. hardware
		Y. Surgeon General
		Z. exercise

Answer Sheet for Worksheet 3.5

Related terms

1. A, Q
2. C, K, T
3. U, P, X
4. F, D, Y
5. J
6. B, S, W
7. V, Z
8. L, O
9. M
10. R, H
11. N, E
12. I, G

Step 4: Recognize General and Specific Topics

Many times students become lost and frustrated when working through the research process because their topic is too general or too specific. When this happens, students find themselves at a dead end, and their next step may be to give up. However, when students understand how to narrow a topic, they will become more efficient searchers and their level of frustration will be minimized.

Lesson Plan Step 4.1

INFORMATION-MANAGEMENT OBJECTIVES

List key words and synonyms and divide them into two groups; general and specific.

STUDENT ACTIVITIES

1. Identify terms as general or specific. (Worksheet 4.1)
2. Using Worksheet 4.2 the student will:
   a. Identify which terms under each column are general or specific.
   b. Identify what broad term can be associated with each column.
   c. Identify three additional broad categories (such as Aviation; Health; Music; Hobbies; Government, Plants) and list two general terms and two specific terms related to each broad term.

TEACHER/LIBRARIAN ACTIVITIES

1. Explain the difference between a general term and a specific term.
2. Demonstrate and discuss a sample list of general and specific terms used in a specific subject area. (Refer to sample list)
3. To reinforce the identification of terms as general or specific the following activity is recommended. Students can use cards (G for general and S for specific) to signal responses as the librarian reads a list of terms. (Suggested terms: snakes G, cobra S; greeting cards G, Christmas cards S; mental illness G, psychoses S).

EVALUATION PROCEDURES

1. Evaluate worksheet of General and Specific Terms.
2. Critique the group participation.

Worksheet 4.1

General and Specific Topics

Place a "G" behind all general topics and an "S" behind those that are specific.

G = General S = specific

1. disaster - ____
2. flood - ____
3. tragedy - ____
4. accident - ____
5. hurricane - ____
6. war - ____
7. catastrophe - ____
8. calamity - ____
9. tornado - ____
10. fire - ____
11. drought - ____

Answer Sheet for Worksheet 4.1

General and Specific Topics

1. G
2. S
3. G
4. G
5. S
6. S
7. G
8. G
9. S
10. S
11. S

Worksheet 4.2

General vs. Specific

Directions: Read each group of terms and label
G = General or S - Specific

a.

Column A			Column B			Column C		
meat	-	____	sheep	-	____	recreation	-	____
fruit	-	____	elephant	-	____	soccer	-	____
bread	-	____	animal	-	____	football	-	____
peach	-	____	puppy	-	____	sport	-	____
vegetable	-	____	horse	-	____	gymnastic	-	____
roll	-	____	breed	-	____	athletic	-	____
beef	-	____	collie	-	____	aerobics	-	____
carrot	-	____	calf	-	____	basketball	-	____
food	-	____	cats	-	____	exercise	-	____

b.

Broad Categories	_____	_____	_____

c.

Broad Categories	_____	_____	_____
General	_____	_____	_____
General	_____	_____	_____
Specific	_____	_____	_____
Specific	_____	_____	_____

Answer Sheet for Worksheet 4.2

General vs. Specific

a.

	Column A	Column B	Column C
1.	G	S	G
2.	G	S	S
3.	G	G	S
4.	S	S	G
5.	G	S	S
6.	S	G	G
7.	S	S	S
8.	S	S	S
9.	G	S	G

b. food animals recreation

c. Answers will vary.

Step 5: Choose the Most Appropriate Terms

Students are now ready to take the next step by focusing in on only the appropriate key words within a research question. This process is accomplished by recognizing and eliminating words not related or compatible with the research question.

Lesson Plan 5.1

INFORMATION-MANAGEMENT OBJECTIVES

Select the most appropriate terms from a list of key words and synonyms on a specific subject area.

STUDENT ACTIVITIES

1. Practice selecting appropriate terms from Worksheets 5.1 and 5.2.

2. On each worksheet compose a research question and list the key words and synonyms.

3. Discuss the relationship between the selected terms and the research statement.

TEACHER/LIBRARIAN ACTIVITIES

1. Explain and define the term "appropriate" as used in the objective.

2. Demonstrate and discuss the sample worksheet modeling the process of selecting the appropriate terms. (Worksheets 5.1 and 5.2)

3. Review the definition of "research question."

RECOMMENDED RESOURCE

Chopra, Linda L. et.al. Research Paper Dubuque: Wm. C. Brown Co., 1984.

EVALUATION PROCEDURE

1. Evaluate completed worksheets.

Worksheet 5.1

Appropriate Key Words

1. Read the statement below.

   "Alcoholism is an increasing problem among youth in America."

2. Circle words in the columns below which are the most appropriate key words for the statement.

alcohol	tobacco	depressant
youth problem	stimulant	wine
drinking	beer	America
drugs	marijuana	adults
teenager	habit	drinking and driving
children	Alanon	

Answer Sheet for Worksheet 5.1

Appropriate Key Words

1. Alcohol
2. Youth problem
3. America

Worksheet 5.2

Appropriate Terms

Directions: After reading the statement below carefully, circle the most appropriate key words.

"Walt Disney contributed to the leisure time culture of the world through the creation of entertainment-educational centers."

Walt Disney	world	entertainment
humor	recreation	adults
Florida	Mickey Mouse	science fiction
education	contribute	children
Epcot	California	movies
mystery	leisure	culture

Answer Sheet for Worksheet 5.2

Appropriate Terms

1. Walt Disney
2. Entertainment
3. Education

Step 6: Recognize the Relationship Between Key Words

The process of conducting an effective search requires a knowledge of the relationship between key words in a search statement. This understanding enables the searcher to select effective operators resulting in an efficient and precise search. A well constructed research question provides a more cost-effective, timely, and relevant end product for the person doing an online search.

Lesson Plan 6.1

INFORMATION-MANAGEMENT OBJECTIVES

Recognize the relationship of key words.

STUDENT ACTIVITIES

1. Select related key words from Worksheet 6.1.

TEACHER/LIBRARIAN ACTIVITIES

1. Review lesson objective.
2. Review procedures for categorizing words.
3. Introduce the word matching exercise. (Worksheet 6.1)

EVALUATION PROCEDURES

1. Check the word lists.
2. Correct and review the word matching exercise.

Worksheet 6.1

Keywords

Directions: From the list below, choose key words which are related.

Dairy farmers	Sex discrimination
Youth problems	Music activities
Facial expressions	Cable television
Bands	Agriculture
Equal opportunities	Delinquency
Civil Rights	Generation gap
Body language	Closed circuit television
Television	Singing
Aging (individuals)	Farm occupations
Nonverbal communication	Older adults

Related key words:

e.g. Dairy farmers -- agriculture, farm occupations

Answer Sheet for Worksheet 6.1

Keywords

1. Dairy farmers - agriculture, farm occupations
2. Youth problems - delinquency, generation gap
3. Facial expressions - body language, nonverbal communication
4. Bands - music activities - singing
5. Sex discrimination - Civil Rights - Equal Opportunity
6. Television - cable television - closed circuit television
7. Aging - older adults

Lesson Plan 6.2

INFORMATION-MANAGEMENT OBJECTIVES

Illustrate key word relationships by using Venn Diagrams to explain logical operators.

STUDENT ACTIVITIES

1. Participate in a discussion about logical operators. (Handout 6.2)
2. Color in the sections of each of the three Venn Diagrams which reflect each operator. (Worksheet 6.2)

TEACHER/LIBRARIAN ACTIVITIES

1. Review lesson objective.
2. Define logical operators. Distribute Handout 6.2 and explain thoroughly.
3. Illustrate the function of logical operators by using a transparency of Venn Diagrams. Distribute Worksheet 6.2.

EVALUATION PROCEDURES

1. Correct and review the Venn Diagram worksheets.

Handout 6.2

SEARCH OPERATORS

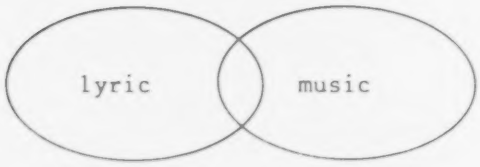
OPERATOR	REQUIRED RELATIONSHIP
	Standard Boolean Operators
OR	Either one or both terms must be in the document.
NOT	A term must not appear anywhere in a document.
AND	Both terms must be in the same document.
	Positional or Free-Text Operators
SAME	Terms must be in the same paragraph.
WITH	Terms must be in the same sentence.
ADJ	Terms must be immediately adjacent to one another, in the order of entry

Worksheet 6.2

Logical Operators

The diagrams illustrating the logical operators are called Venn Diagrams.

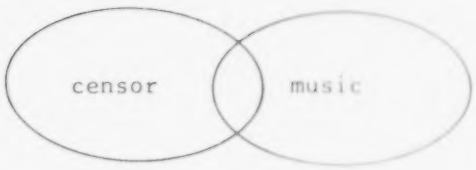
1. Shade in the areas which indicate lyric or music.



OR Operator

Used to group synonymous terms when at least one must be present.

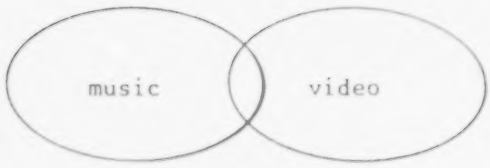
2. Shade in the areas which indicates censor and music



AND Operator

Used to connect concepts or terms when both or all must be present.

3. Shade in the area which indicates music but not video



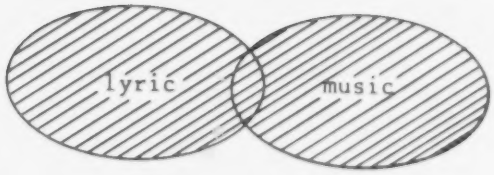
NOT Operator

Used to eliminate records containing the specified term.

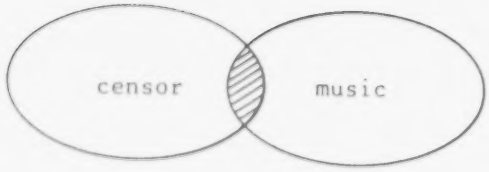
Answer Sheet for Worksheet 6.2

Logical Operators

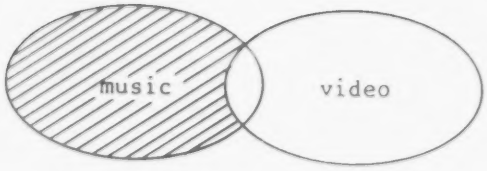
1.



2.



3.



Lesson Plan 6.3

INFORMATION-MANAGEMENT OBJECTIVES

Explain the precise relationship of positional operators and their impact on the search statement.

STUDENT ACTIVITIES

1. Participate in a discussion about positional operators.
2. Complete worksheet on positional operators. (Worksheet 6.3)

TEACHER/LIBRARIAN ACTIVITIES

1. Review lesson objective.
2. Define a search statement.
3. Define positional operators and explain their functions. Refer to Handout 6.2.
4. Distribute Worksheet 6.3.

EVALUATION PROCEDURES

1. Evaluate the worksheets on positional operators.

Worksheet 6.3

Positional Operators

1. Write a search statement which will retrieve the terms "eating" and "disorder" in the same paragraph.

_____

_____

_____

2. Write a search statement which will retrieve the terms "eating" and "disorder" in the same sentence.

_____

_____

_____

3. Write a search statement which will retrieve the terms "eating" and "disorder" next to each other in the same sentence.

_____

_____

_____

Answer Sheet for Worksheet 6.3

Positional Operators

1. Eating same disorder.

2. Eating with disorder.

3. Eating adj disorder.

Step 7: Developing a Search Strategy

When doing research, it is important to look at all options in order to make the most efficient and productive decision. Developing a search strategy is part of this process. It is the decision making process that determines whether a topic is appropriate for an online search. The lesson plans follow the sequence of steps taken in this process. The plans may be used as a unit or the final plan as an independent lesson. The strategy process includes:

1. Select an appropriate subject category.

2. Select an appropriate database and analyze its content.

3. Determine whether the search should be performed online or manually.

Lesson Plan 7.1a

INFORMATION-MANAGEMENT OBJECTIVES

Using the BRS/Search Service Databases Available sheet, identify appropriate topics for subject categories.

STUDENT ACTIVITIES

1. Examine BRS subject category list.
2. Choose a subject category.
3. List topics for the category chosen.
4. Report results to class.

TEACHER/LIBRARIAN ACTIVITIES

1. Review lesson objective and review Handout 7.1.
2. Introduce major subject categories from BRS subject category list.
3. Organize class into groups.
4. Assign subject category to each group.
5. Assist groups with activity.

EVALUATION PROCEDURES

1. Evaluate the report.

Handout 7.1

Strategy Process

1. Select appropriate subject category.
2. Select appropriate database(s).
3. Analyze content of database(s).
4. Determine online charges.
5. Determine full text or bibliographic database.
6. Decide online or manual search.

Lesson Plan 7.1b

INFORMATION-MANAGEMENT OBJECTIVES

Select appropriate subject category.

STUDENT ACTIVITIES

1. Match subject categories with suggested topics from Worksheet 7.1b.

TEACHER/LIBRARIAN ACTIVITIES

1. Review the lesson objective.
2. Review subject categories.
3. Distribute Worksheet 7.1b.
4. Assist student with subject category selection.

EVALUATION PROCEDURES

1. Evaluate Worksheet 7.1b.

Worksheet 7.1b

Appropriate Subjects

	Suggested Topics	Subject Categories
____	1. scholastic tests	A. Medicine/Pharmacology
____	2. alcohol and drug abuse	B. Physical/Applied Science
____	3. handicapped children	C. Life Science
____	4. AIDS	D. Business
____	5. cancer	E. Social Science/Humanities
____	6. nutrition	F. Education
____	7. computer hardware	G. Reference/Multi-Disciplinary
____	8. acid rain	
____	9. toxic waste	
____	10. patents	
____	11. math statistics	
____	12. frogs	
____	13. farming	
____	14. stocks	
____	15. tourism	
____	16. marketing	
____	17. psychology	
____	18. marriage	
____	19. aging	
____	20. colleges	
____	21. Civil War	
____	22. British authors	
____	23. Peace Corps	
____	24. sports injuries	

Answer Sheet for Worksheet 7.1b

Approporiate Subjects

1. F
2. E
3. F
4. A
5. A
6. A
7. B
8. C
9. C
10. B
11. B
12. C
13. C
14. D
15. D
16. D
17. E
18. E
19. E
20. F
21. G
22. G
23. F
24. A

Lesson Plan 7.2

INFORMATION-MANAGEMENT OBJECTIVES

Using the BRS Database sheet, analyze the content of a database and choose an appropriate database to search one topic from Worksheet 7.1b.

STUDENT ACTIVITIES

1. Select one topic from Worksheet 7.1b.
2. Determine subject category of topic.
3. Using the database descriptive, select a database.
4. Using the AID Page for a database, select and analyze the content of the database.
5. Give a report.

TEACHER/LIBRARIAN ACTIVITIES

1. Review lesson objective.
2. Introduce an AID Page for a database.

EVALUATION PROCEDURES

1. Evaluate report.

Lesson Plan 7.3

INFORMATION-MANAGEMENT OBJECTIVES

Determine whether a search should be done online or manually.

STUDENT ACTIVITIES

1. From the databases chosen in the previous lesson, complete Worksheet 7.3. Complete the following activities:

   a. Check the AID Page to determine if the database is responsive to the time period of the research question.

   b. Identify whether the database is full text or bibliographic.

   c. Project the cost of an online search.

   d. Decide whether the search should be done online or completed manually.

TEACHER/LIBRARIAN ACTIVITIES

1. Review lesson objectives.
2. Introduce BRS Service Charge Sheet.
3. Assist student with decision making.

EVALUATION PROCEDURES

1. Evaluate Worksheet 7.3

Worksheet 7.3

Online or Manual Search Determination

Topic _____

Subject Category _____

Database(s) _____

Is database responsive to the time period of the research question?

_____ Yes _____ No

(If no, review other possible databases)

Full text _____ Bibliographic _____

Charges _____

Online Search _____ Manual Search _____

APPENDIX A

GLOSSARY

Focus - Concentrate attention on the major purpose of a research question.

Logical Operators - Standard Boolean operators (and, or, and not) that do not require any precise positional relationship between terms. The logical operators are used to indicate the presence or absence of particular terms within a group of documents.

Manual Searching - A process to identify resources which does not include any type of electronic searching.

Positional Operators - These operators (same, with, adj) allow users to indicate more precise positional relationships between terms. These require not only that the term be present in the same document, but also that they occupy particular positions relative to one another in that document.

Problem Definition - The process of analyzing a research question, recognizing key concepts and relationships of words, and developing an appropriate search strategy.

Search Strategy - A plan of action for accessing a database and retrieving the desired items. A search strategy may include a selection of terms, statements as to their desired relationships, and instructions concerning the sequence with which they are to be searched by a computer.

Subject categories - A multidisciplinary grouping of databases as defined by BRS.